Chapter 5: Missileer Culture: Day-to-Day Life (1960s–91)

Trained and dedicated officers, troops, and technicians managed the awesome destructive force embedded within each Minuteman missile on a day-to-day level. Their lives while on three-day or twenty-four hour alert tours became intertwined with their machines and their mission. Minuteman's Launch Control Facilities (LCF) in South Dakota were operated by Air Force personnel who lived and worked at the sites. Each staff member had their own responsibilities to support the overall function of the LCF, though their primary duty was to support the missile combat crew in the underground Launch Control Center (LCC). Personnel assigned to reside at the LCF included a facility manager, flight security controllers, security alert team members, and a missile rations cook. Maintenance crews occasionally stayed overnight at the facility as well. Activities and duties of the crews evolved over the nearly three decades of Minuteman in South Dakota. The general description of the duties and procedures described below may not reflect all the varying experiences of the Air Force personnel over the years.

While on duty, the staff worked, ate, slept, and relaxed at the LCF. For Air Force personnel, the grounds became a second home for the duration of the tour. Many of the facilities were equipped with recreational facilities such as basketball hoops, ping-pong and pool tables, and weight rooms. They all had a television and some even had satellite televisions and videocassette recorders. In this sense, the sites ceased to be uniform almost immediately upon use, as crew alterations and tastes transformed the LCF into unique living and working environments. Working as a team and frequently serving the same tours, many LCF personnel and teams formed special relationships. In the late 1970s, for example, LCF personnel from Delta-01 of Ellsworth Air Force Base called themselves the "Delta Dogs" and painted a bulldog on the wall. Although the mural has since been painted over, the legacy of the "Delta Dogs" still exists in the minds of the men and women who served at the Ellsworth Air Force Base Delta Flight.[i]

Many Air Force personnel who worked in operations or maintenance at the LCFs went through the Personnel Reliability Program, a psychological screening program that evaluated missileers and support crew. Crew members were not permitted to serve alert tours if something was hindering their ability to think clearly, including medications and marital situations. Commanding officers, coworkers, and friends were asked to report strange behavior and emotional upsets of LCF and LCC personnel that may affect their job performance.[ii]

Air Force personnel involved in the Minuteman missile, not just the missileers, were well aware of the seriousness of their mission and the potential consequences of their use. When Martin Pietz, who served on the electro mechanical team at Ellsworth, was asked, "Did it bother you at all that the missile you were supporting, if it were ever used, likely meant the end of life as we know it?" Pietz responded, "You're torn when you work. I mean you have exercises where you have scenarios where you have practice war, in case it, God forbid it ever happened, it wouldn't, you wouldn't sit there and think about 'what am I doing, what am I doing?'… So after, I mean you'd go home that night and you'd think about 'man, what are we doing?' So yeah, did you ever think?

Yeah, absolutely! You tried to stay in the mode. It was your job to have things ready to go and hope it never got used."[iii]

David Blackhurst, a former missile crew commander recalled that they took their job very seriously and described it once they were in a routine in the following manner, "After awhile we had a saying it was kind of like hours and hours of sheer boredom punctuated by seconds of panic. But basically it was a serious job."[iv] Former missileer Craig Manson continued to describe the mindset of a missileer by addressing one of the most difficult questions frequently asked of them. "And so the question frequently is, 'well, you know, how could you do that job knowing that you might be called upon to participate in a war of nuclear devastation?' And I think there's a couple of things that people have to keep in mind. One, the majority of missile launch officers, even though they're fairly young officers, the majority are married and many of them have children and families, and that's crucial to keep in mind. Two, although no one ever said to a missile officer, 'we are categorically ruling out a nuclear first strike,' because of their faith in American values, I think we were all convinced that America would act only in the best interests of America and the world and not in an unreasonably aggressive posture for no reason at all."[v]

Following is a description of the principal assignments for each of the Air Force personnel assigned to a Minuteman LCF or LCC at Ellsworth Air Force Base.

At the Launch Control Facility

Facility Manager

One facility manager was on duty during each three-day alert tour. While the facility managers were accountable for managing the facility and supervising the topside crew, they were ultimately responsible to the crew commander on duty in the LCC.[vi] Facility managers were typically noncommissioned officers with excellent technical and managerial skills who were in their twenties and thirties holding the rank of Master Sergeant, Technical Sergeant or Staff Sergeant. Any Air Force personnel could have applied to serve as a facility manager, including maintenance crew, cooks, and administrative support. Once the Air Force selected an individual to become a facility manager, Strategic Air Command (SAC) required that they visit one of the sites and begin on-the-job training with an experienced facility manager. There was no formal training to become a facility manager. Rather, they learned their job primarily by performing the required tasks.[vii]

The facility manager's primary duties included supervising and managing LCF personnel for the combat crew commander, maintaining support equipment, and responding to emergencies under the direction of the missile crew on duty.[viii] Also under this job description, however, were a host of additional duties, including everything from acting weatherman, mechanic, innkeeper, and groundskeeper, or essentially, anything needed to keep the LCF running smoothly.

Many missileers called the "jack-of-all-trades" facility manager their "house mouse." The phrase derives from the concept that the LCF performed much like a small hotel serving as a location away from home where security personnel, cooks, and missile crews, and sometimes

missile maintenance crew ate, slept, and relaxed, in addition to worked.[ix] Despite the frequent lightheartedness of the personnel at the LCF, the facility manager had a difficult and potentially stressful job. In an article published in 1974, Sergeant Roger Wang stated that the primary reason for facility managers is to "support the two guys who someday may have to turn the keys to fire the Minuteman."[x] The purpose of a strategic missile site, to defend the nation by offering a constant and vigilant threat of counter-attack, was rarely far from the minds of such airmen.

After arriving at the LCF, the facility managers used the day's code to get onto the site. Although the LCF security staff knew the facility manager was coming, everyone accessing the site–even those recognized–had to be authenticated before entering the site as a precaution against sabotage or attack. This emphasis on security was included even in routine activities. If the facility manager needed to go down to the capsule, for example, he would first have to authenticate the codes received from Ellsworth Air Force Base with the combat crew. One facility manager, serving at Delta-01, once read his code backwards to the combat crew. Realizing his mistake, the crew asked if he was sure this was the way he wanted to state the codes. Unfortunately, the facility manager did not understand their hint, and was forced to return to Ellsworth Air Force Base to reverify his codes.[xi]

After arrival at the LCF, the facility manager's first task would be to walk the facility and the grounds with the manager on-duty for a briefing, where the work performed by the previous alert tour, and the work required for the next, would each be detailed. Every day at the facility offered similar duties. After rising in the morning, the facility manager would phone in a weather report to the helicopter pilot on-duty at Ellsworth Air Force Base. Following breakfast, the facility manager took care of other daily responsibilities. Morning chores included inspection of the LCF grounds, including the water treatment tank, the power generators, and the sewage lagoon. After the daily inspections, the facility manager typically spent much of the day maintaining the facility and repairing support equipment, including replacing light bulbs and refueling vehicles. In the summer the facility manager was responsible for mowing the yard and in the winter he or she shoveled the drive.[xii]

Facility managers were also responsible for meeting any individual that entered the LCF property, including everyone from branch chiefs, maintenance crews, and local law enforcement to family members and local ranchers. All visitors needed approval to visit a site, including family members. Visitors could be sponsored by Air Force personnel who prepared a request letter that was then reviewed and approved through the chain-of-command. The facility manager was effectively never off-duty while on an alert tour. If a maintenance crew was scheduled to arrive in the middle of the night for a Remain-Over-Night (RON), for example, the facility manager was required to brief the visitors on safety and arrange for their meals and living quarters.[xiii]

The facility manager also had the job of calling in stand-bys or personnel replacements as needed. Three days in close quarters sometimes prompted disagreements between LCF personnel. In such cases, the facility manager had the authority to send the aggressor back to

base and call in a replacement to finish the alert tour. Emotional problems and medical emergencies at the base or at home also warranted the facility manager to call in stand-by personnel.[xiv] Although never off-shift while on alert tour, being facility manager offered unique rewards. The manager was the only LCF personnel assigned a single room. Other topside crew shared a room with as many as three others. Some facility managers even had a private television in their bedroom, though again, the amenities of Minuteman II LCFs varied by the time the system came off-line.[xv]

Flight Security Controllers

Every three-day alert tour at the LCF included two flight security controllers. The flight security controllers were typically noncommissioned officers with the rank of Sergeant (now Senior Airman), Staff Sergeant, or Technical Sergeant, typically in their twenties. Regulations demanded the presence of one security controller in the security control room at all times, and therefore, each of the three days of the alert tour was split into twelve-hour shifts with one controller manning each shift. The security controller on-shift monitored the LCF grounds, as well as all ten Launch Facilities (LF) in their flight area. The security control room featured windows overlooking the entrance gate and grounds.[xvi] From this station, the security controllers would check identification of visitors or replacement crews entering the site. A security team's first duty upon arriving at the LCF was a changeover process with the security staff on-duty, including inspections of the building and grounds. The previous security controller would brief the new team on what LFs were down and which ones were under maintenance. The changeover procedure was always the same between shifts and rarely changed.[xvii]

Each security controller also supervised a two-member security alert team. If the missile combat crew received indication that security was breached at one of the LF sites, they would notify the security controller who would dispatch the security alert team to investigate. The security controllers were also responsible for storing and issuing weapons and ammunition to personnel at the LCF. Weapons were stored in a locker located in one of the security bedrooms and the weapons cage in the security control center.[xviii] The Air Force equipped the security controllers with M-16s, the military's standard rifle after its introduction in 1964, with 240 rounds of ammunition or an M-60 machine gun.[xix] While on alert tour, but off-duty, security controllers would often spend time playing games, working out, resting, and relaxing. The windows in the security bedroom were darkened to enable controllers assigned to the night shift to sleep during the day.

Security Alert Team

Two security alert teams were assigned to each LCF. The two-person team typically included a Sergeant (now Senior Airman) and an Airman or Airman First Class ranging in age from eighteen to the mid-to-late twenties. The two-person security alert teams rotated being on-duty during the three-day alert tour. The security alert teams, under the supervision of the flight security controllers, were responsible for periodic site inspections and responding to any security breaches that occurred in the flight area, including the LCF and all ten LFs.[xx] It was their duty to secure an LF, for example, following an alarm or security breach and remain at the LF until the site was secure and alarmed. Although Air Force records do not indicate any potentially

dangerous breaches of security at a Minuteman LF, the security controller frequently dispatched security details to the LFs to verify the integrity of the site. Each LCF and LF was equipped with an alarm system that sounded, if tripped, in the LCC. To combat sabotage the systems were unusually sensitive and the alarm was often set off by squirrels, rabbits, and even grasshoppers.

Some of these dispatch-call incidents proved unusual experiences for security teams. As reported in *LIFE* magazine in 1964, in one instance in South Dakota, an alarm buzzer indicating an LF breach sounded in the LCC and the commander phoned the topside flight security controller who immediately dispatched a security team to the site. The armed security team hurried to the site, where to their surprise they discovered two camels rubbing against the fence. The animals had escaped from a nearby Passion Play.[xxi] Another incident proved to be a prank. After realizing security teams would respond to such innocuous occurrences as cows grazing near the fence, one local threw a raccoon inside the fence. The local prankster was eventually caught and released after questioning.[xxii]

Not everything was life or death at the Minuteman sites, and local residents learned not only to coexist with the sites, but also to share the plains with Air Force personnel. "They were usually a bunch of fresh faced kids sent to God's forsaken half acre or something," rancher Gene S. Williams recalled, "I know a couple of times when it was a hundred degrees and there were boys that were stationed up there [a Launch Facility] and my mom took ice tea up to them . . . I suppose now they would have gotten into great trouble because they could have been drugged or something, but you know, that's just how it was."[xxiii]

The security alert team was also responsible for escorting maintenance teams onto the LF grounds. Getting access to the grounds, just as accessing an LCF, required a valid authentication number. Personnel who required authentication received a number and a table of numbers with corresponding letters from Ellsworth Air Force Base. The maintenance personnel would state what table he was working off of and call out the letters that corresponded with his number using a phonetic alphabet. If they had the wrong number or read the code wrong, the standard procedure was for the security to "jack them up" against a fence or wall and check their identification.[xxiv] In order to access the missile launcher, two sets of codes were needed–A side codes of security personnel and B side codes of maintenance personnel. On some occasions, when repairing the launch system or security system proved time-consuming, the flight security controller would send a two or four person "camper team" from base to the LF, capable of working and securing the site overnight, until maintenance completed the necessary repairs.[xxv]

In addition to their security duties, the security alert team was also responsible for assisting the facility manager in housekeeping duties at the LCF. Their typical areas of responsibility included the hallways, office, day room, bathroom, and their bedrooms.[xxvi]

Missile Rations Cook

One cook was scheduled for each three-day alert tour at each LCF. Missile rations cooks typically held ranks from Airman First Class up to Staff Sergeant and were typically in their twenties. The cook was

required to prepare requested meals for the personnel and visitors of the LCF. The cook also assisted the facility manager in responding to emergencies and in standard housekeeping duties. The cook's primary responsibility was for the cleanliness of the kitchen, dining room, and bedrooms.[xxvii]

The cook was responsible for serving four meals per day, including breakfast, lunch, dinner, and a midnight meal. The cook not only served topside crew, but also had the responsibility of taking meals to the missile combat crew in the capsule, and was required to go through the authentication procedure with codes every time they entered the capsule. Most meals were prepared at another site, packaged in foil, and then frozen. The cooks simply heated the foil packs in the oven. Some cooks showed remarkable creativity in completing their tasks, however, making soups or stews out of leftover foil packets, or making seasoned croutons for the salads out of bread.[xxviii] At some facilities, the cook would even barbeque for LCF personnel. After collecting money from the crew, they would have the security team stop at a local store to pick up chicken, steaks, or hamburgers when they were sent off the grounds on other errands.[xxix] The Delta-01 facility often had fresh breakfasts with eggs sold to them by a nearby rancher, in yet another display of the way missile crews integrated into the daily life of local residents.[xxx]

Maintenance Crew

Although maintenance crews did not serve regular alert tours at the LCFs, they routinely entered the LF and LCF grounds to perform inspections, conduct routine upgrades, or make necessary repairs. The maintenance force was responsible for ensuring that all systems were operable and on ready status by following precise technical orders written by Air Force engineers. The rank of the maintenance crew varied depending on the experience and responsibilities of the team, and could range from Airman up to Captain.

Each Minuteman wing included a deputy commander for maintenance who operated the base maintenance complex and was responsible for planning, scheduling, and directing all maintenance of LCF and LFs in their wing. Air Force maintenance included four divisions and two squadrons. The Field Missile Maintenance Squadrons (FMMS) and the Organizational Missile Maintenance Squadrons (OMMS) were responsible for the actual maintenance of the Minuteman missiles and support equipment.[xxxi] The FMMS maintained hydraulic and pneumatic systems, site support equipment, and test equipment. This squadron also performed periodic maintenance at the sites. The OMMS had a mechanical and electrical branch that were responsible for the transportation, installation, and removal of missiles, the reentry vehicles and systems, propulsion system rocket engines, and the emergency rocket communications systems. The OMMS also repaired electrical, surveillance, and access systems.[xxxii] Despite routine maintenance and inspections at the LFs, the deputy commander for maintenance routinely received notification of equipment faults at LFs and LCFs directly from the missileers in the LCC.[xxxiii]

A maintenance team chief, responsible for supervising the crew, attended every maintenance call. Even with the presence of a security alert team on all maintenance missions, the maintenance team chief was responsible for authenticating their access with the missile commander in the LCC. The team chief was accountable for all activities at the

site while they were performing maintenance duties.[xxxiv] As of 1963 maintenance teams at LF sites were required to be in contact with the LCF a minimum of every thirty minutes.[xxxv]

Maintenance crews transported their equipment in “U-vans” or utility vans. This van was a three-quarter-ton pickup with a utility box on the back. The utility box had several different compartments that organized the equipment and tools needed to make repairs at the LFs or LCFs.[xxxvi] Work on an LF frequently required access to underground facilities. To do this the maintenance crew had to pass through “formidable mechanical barriers” in a process that sometimes took up to an hour. First the security pit weather cover was removed, a combination was entered, and the security pit vault door was removed. These security procedures allowed retraction of the locking shaft and operation of the controls for the pump and two hydraulic cylinders used to slowly raise the steel and concrete primary door (personnel access hatch). After securing a metal ladder, the crew descended a few feet down the cylindrical shaft and entered another combination into the secondary door (B-plug) and retracted the locking bolts. After a preset timed interval, the large steel plug would lower to the level of the upper equipment room. The crews could then climb down the equipment room surrounding the launch tube, lower their equipment, and begin their maintenance tasks.[xxxvii] Two shotguns, ammunition, and gas masks were placed in each silo in 1978 to increase security at the site.[xxxviii]

Maintenance crews were only permitted to be in the field a total of sixteen hours on a dispatch to ensure a level of alertness. After completing pre-maintenance tasks, including vehicle and equipment checks and briefings, the team drove to the site, went through the authentication process, and began accessing the underground missile. Since the sixteen hours must include time to return to Ellsworth Air Force Base and go through the pre-maintenance tasks in reverse order, a maintenance team may only have five hours to perform maintenance at the LF. Due to the distance of many of the missile silos from Ellsworth Air Force Base, maintenance crews often remained at the closest LCF overnight on RON.[xxxix]

Although maintenance was usually routine, crews sometimes faced unexpected circumstances. In one unusual incident in 1975, for example, a maintenance crew was dispatched to a Minuteman LCC at Minot Air Force Base in North Dakota to help free four trapped missile crewmen. The incident occurred when two missile crewmembers arrived at the LCC to relieve the crew on duty. They entered the LCC and proceeded through the changeover process, only to discover that the blast door would not open. Maintenance responded to the call of the missile commander for assistance, but the blast doors were designed to resist force from the outside. Through a small hole, maintenance passed technical instructions to the four crew members to dismantle panels from the door. It took eight hours to remove the necessary panels and to dislodge the first of four three-inch pins. Several hours later only one pin remained in place, but it would not budge. A special welding team arrived at the site, and spent an additional four hours cutting through the door. After thirty- and forty-two-hour alert tours, respectively, the two crews were finally free to exit through the twelve-foot by twelve-foot hole.[xl] The blast door at Minot,

described above, is not the same configuration as Ellsworth's blast door.[xli]

In the Launch Control Center: Missile combat crew

Finding the right individuals to serve as missileers in the LCCs posed a paradox for the Air Force that was described in a 1963 *Saturday Evening Post* article, "the job required a reliable, stable, intelligent officer who could be counted on to fire the Minuteman in the chaos of nuclear combat–and not before. But the more intelligent the man, the quicker he would be bored by the capsule routine." Colonel Richard Butler of SAC's personnel branch told the *Saturday Evening Post*, "We needed a kind of hermit, but a hermit would not have the main characteristics we needed."[xlii]

Missileers completed a rigorous training program prior to their assignment to a missile crew. Chanute Air Force Base in Illinois began hosting a Minuteman program training center for new Air Force recruits on 21 June 1959. Students arrived at Chanute ready to study the safe operation of the Air Force's latest weapon. Training focused on classroom instruction at the Chanute Technical Training Center in three six-hour shifts. Classes included both general training for incoming missileers and specialized training in the complex systems controlling Minuteman, such as targeting or electrical systems. After completing courses at Chanute, graduates were assigned to Vandenberg Air Force Base in California, where they received Operational Readiness Training. This training provided them with real life experience learning launch and maintenance techniques. After graduating from the training school at Vandenberg, the missileers and technicians received assignments at an operational Minuteman missile wing.[xliii]

Even after completing basic training for the Minuteman program, crews underwent scheduled training and evaluations once or twice a month to make sure that they continued to perform to the strict standards. Missileers at Ellsworth Air Force Base went for regularly scheduled "rides" in the Missile Procedures Trainer (MPT), also known as "the box" or "simulator," which simulated a Launch Control Center at Ellsworth. The MPT at Ellsworth was located in the large hanger known as the Pride Hanger. Crews emerged from the training, which typically took one to two-and-half hours, having honed their skills for Minuteman procedures. Missileers completing an evaluation practiced their skills and received a score ranking their competency. Those receiving low scores (lower than four on a five-point scale) received additional training to improve their performance.[xliv]

During the first years of the Minuteman program, combat crews worked thirty-six- to forty-hour alert tours, with eight- to twelve-hour shifts in the LCC, separated by a rest period in the LCF.[xlv] While topside personnel at the LCF normally pulled a three-day alert tour as a team, the two-person missile combat crew worked a thirty-six- to forty-hour alert tour and averaged five tours in a month. The length of the tour varied for each crew depending on the distance of the LCC from Ellsworth Air Force Base and some facilities were nearly one hundred miles from base.[xlvi]

In July 1977 the shift was changed to a single twenty-four-hour shift, with the crew being replaced by a new missile combat crew dispatched from Ellsworth Air Force Base. Former missileer Craig Manson recalled that he was happy with the change to a single twenty-four-hour shift,

> "The forty-hour alert system was really draining physiologically, just difficult because your schedule was all crazy. You'd go out there, you'd pull eight hours downstairs, during which you were not supposed to sleep, and then you'd go upstairs to sleep, or watch TV or do whatever for eight hours, then you'd change-over downstairs again for another eight hours. You did this until you had a total of twenty-four hours in the hole and sixteen hours upstairs. The last eight hour shift before changeover was the night shift. And so your body clock was all off and then you'd have to be alert enough to drive home. If you were at some of the sites, you know, some of the sites were as much as 150 miles away, and so then you'd have a three hour drive after [laughs] being up all night. So I personally found it horrible, the forty-hour alerts, and I think a lot of people did. They just didn't like it."[xlvii]

When the tour duty changed to twenty-four hours in the LCC, the missileers averaged approximately eight tours per month. A shift did not include time driving to and from the facility or the changeover briefing before and after the shift.[xlviii] The two-person crew included a deputy missile combat crew commander and a missile combat crew commander. Only officers could be assigned to a combat crew, and generally, first lieutenants with a minimum of a year-and-a-half of experience as a deputy commander in the LCC qualified for promotion to the position of crew commander.[xlix]

The most important responsibility of the missile crew was constant vigilance and preparation to launch the missiles under their control. Other duties included coordinating maintenance and inspections of the missiles and monitoring alert status of the missiles and their support systems designed to ensure the readiness of their missiles. Additional responsibilities involved monitoring the systems of the LF and maintaining missile equipment logs.[l]
After arriving at the LCF, a missile crew had their identification examined by the flight security controller and then began the authentication procedure with the on-duty missile crew. After they cleared security, they descended down the elevator to the LCC, also known as the "no-lone zone," because one could never enter the capsule alone. After arriving at the blast door a voice would shout "clear" from inside the capsule. The oncoming crew shouted back and the eight-ton door slowly swung open.[li]

Once inside the capsule, the missile crew's shift began during a process called changeover, a formal procedure that allowed for the changing of crews in the LCC. The changeover included a ten-minute briefing on the weather report, call signs, a classified advisory on the day's war plan, and the placement of each crew member's padlock on the metal box that secured the launch keys. The changeover concluded with each departing crew member handing over three items to the deputy and commander- a three-by-five inch card encased in plastic and framed in metal with the day's top secret code to decipher commands from SAC;

a key to be inserted into the console and turned in order to fire the missiles; and a .38-caliber revolver. The gun, worn in a holster, was for protection in the unlikely event of intruders. The missile combat crew was prohibited from taking off the holster while in the capsule.[lii]

After the capsule door closed, a new crew would check the maintenance logs and inspect support equipment.[liii] The duration of their shift was spent running practice drills or reviewing procedures to prepare for SAC's random Operational Readiness Inspections, an examination performed by an Inspector General to determine the effectiveness of the combat crews.[liv] The crew had very precise procedures for every task. If they ever received a launch command, both crew members would open the locked box that contained "cookies," or the authentication codes. Once the crew members agreed that the command was authentic they would insert the keys and turn them at the same time, launching a missile.[lv]

To launch a missile, an Emergency War Order (EWO) would have come over the SAC radio with a message that the crew had to authenticate. After they agreed that the message was authentic, they unlocked their padlock on the red metal box that contained two keys for launching the missiles. Each crew member would then buckle into their seats and the commander would count down. The deputy commander then flipped a row of "arming" switches for each of the missiles, making them readied for immediate launch. The commander opened the plastic cover over his launch control panel in front of him exposing the area for the launch key, and the deputy commander removed the plastic cover over the cooperative launch switch. Each crew member would insert their key and a "conference call" is ordered where the crew speaks via phone and headset to the squadron command post for readiness reports on other Minuteman capsules. The command post then issues a command to "launch on your count." On the commander's count, both crew members would have to turn the keys at the same moment. The two ignitions are situated far enough apart that one person alone could not reach both keys and single-handedly provide the go ahead to launch a missile. The Minuteman missile cannot be launched without a corroborating signal from another LCC, providing the second vote.[lvi] Launch procedures were modified slightly in later years when a launch enable control group signal panel was added to the Deputy Commander's Control Console. An unlock code was required to be inserted into the "code inert thumbwheel switches" of the launch enable control panel to enable missiles for launch. [lvii]

Day-to-day activities for the crew varied. Some days proved to be very slow and other days kept the crew extremely busy. While there were always unexpected maintenance indicators and outer zone security violations at the LCFs, there was also scheduled maintenance at each of the ten LFs under control of the LCC. Weekdays were typically busier than weekend shifts in the capsule because of scheduled maintenance.[lviii] During the course of a shift there were often procedures for the crew to practice and review. In addition there was frequent communication from base and SAC, including messages from Looking Glass, the flying command post that kept a SAC general in the air in case ground command posts were out of commission, to make sure all stations were on alert.[lix]

To combat boredom, missileers often took advantage of the quiet time to study or rest. Each LCC included a sleeping compartment, where one crew member could rest. His or her partner would naturally remain at

their console during such times. Outside of their duties in the LCC, missile crews underwent training several times a month, including courses in weather systems, codes, EWOs, and missile simulation training. SAC offered the opportunity for missileers to pursue academic degrees while on alert to boost morale and as incentive for crewmembers to remain in the Air Force. Many missileers possessed a bachelor's degree and used time in the capsule to work on homework and to fulfill the requirements of a master's degree.[lx] When there was not enough free time between alarms to concentrate on studying, missileers often played cards, pursued hobbies, or browsed through magazines. Some missile crews referred to such activities as "frontline defense against alert boredom."[lxi] In another effort to combat boredom and keep in touch with the world above, former missileers have relayed that there were instances of tapping into the radio communication system to listen to radio programs and football games on the same system that unannounced radio checks were received from SAC. In one case missileers pulling alert at two different LCC facilities worked together to allow one of the missileers to listen to a football game without being caught. A missileer at another LCC agreed to respond to the radio check from SAC posing as the other missileer and then to call him via telephone to relay any information.[lxii]

At the end of every shift the missile crew proceeded through the changeover process with the incoming crew. After the procedure they traded salutes with the new crew and rode the elevator thirth-two feet to the LCF, carrying with them bags of classified trash to be burned in the code-burner on the grounds as a security precaution.[lxiii]

Although Minuteman missiles were never launched in anger, President Carter did transmit a message over the SAC radio once in 1977. In the midst of a typical shift, the SAC controller unexpectedly warned the combat crews to "standby for a message from the president of the United States." With their hearts pounding, waiting for the authentication code to launch Minuteman, the president said, "Hi, you all. I'm here at the SAC command post and I wanted to see how this thing worked." Although crew members can laugh about it now, the threat of a nuclear attack was very real to them at that moment in 1977.[lxiv]

During active duty, the Minuteman missile and the life of the missileer in the LCC was not as secretive as one might have guessed. In a few cases, national reporters were allowed into the LCC to complete articles and news stories about the missileers and life in a LCC. These events were unusual in that they allowed the public and the Soviet Union to see our military defense systems. However, SAC had a history of showing off our military and technological strength. For example, a massive media campaign accompanied the activation of Project Looking Glass, as reporters received tours of the plane and some even went on test flights.

In the early years of the active Minuteman program, *LIFE* magazine ran an article titled "How it Feels to Hold the Nuclear Trigger." Reporter Richard Stolley and a photographer Bill Ray spent twenty-four hours in an LCC in South Dakota with a SAC escort officer and Minuteman missile crew commander Allen Lamb and deputy commander William Christians. The resulting article and photographs in the 6 November 1964 issue documents the routine activities of the crew at the Lima-01 LCC. This article may have been one of the first to give the country and the

world a direct look into the LCC and the duties of a missileer.[lxv] In January 1978 NBC's *The Today Show* was producing a series of stories on SAC and they were sent to Ellsworth Air Force Base, a base with both missiles and bombers, to film. A missileer crew, including Gary Andrews and Craig Manson, were hand picked to be filmed performing an alert tour in the LCC at Alpha-01. The reporter, Eric Burns, and the film crew received a visitor briefing prior to being brought down to the capsule to film. Former missileer Craig Manson recalled the following discussion during the briefing, "And part of that briefing was, 'If you hear that warble tone coming out of the box up there, then you must turn off your cameras, go to the back of the capsule, turn around and face the blast door.' Now being journalists, they were highly aggravated at this. And Eric Burns said, 'You mean, we can't film what you do?' And we said, 'no.' And he said, 'Well, what will you be doing?' And I said, 'We will be determining whether or not we have to take emergency action under an Emergency War Order.' And he said, 'Well this would be great history. We want to get that on film. We've got to be able to see that.' I patted my .38 and said, 'no' "[lxvi]

Prior to the visit by the film crew the missile crew received its own briefing from Air Force Public Affairs. The missileers were instructed to give the following response if they were asked a question about nuclear weapons. "And they said, 'Here is your response to the question about nuclear weapons: I can neither confirm nor deny the existence of nuclear weapons at this installation.' " Manson recalled, "And the reason we could say that is because it was true." Manson continued to explain that some missiles had communications and some had warheads and that was what was secret. As it turns out the reporter did not ask about nuclear weapons.[lxvii]

Manson also recalled that, "At Ellsworth, for several years–not always, but for several years–Delta-09 did not have a warhead on it. And I knew that. It was classified at the time, but I knew that. But I didn't know which other ones might not. And Delta-09 didn't for a number of years because Delta-09 was known as the off base training element."[lxviii] When asked about common misperceptions about serving in the missile business, Craig Manson stated that a minor irritation was that "everybody talks about a button. It's not a button, it's a key."[lxix] On the more serious side, Manson stated, "… because of television and movies and in part because of the image the Strategic Air Command cultivated for itself, people have the idea that missile launch officers were somehow bloodthirsty killers with few morals and no soul and ready to kill millions of people with the turn of that key. And that's just not so. One of the things that's made America great is that we do not have a warrior class in America like some ancient civilizations or some societies today. Our military is drawn from ordinary people living in ordinary communities, growing up with the same values that they perceive around them and missile launch officers come from that same group of people–ordinary Americans with mainstream values."[lxx]

Changes in Missile Culture

Early on in America's missile era, SAC employed only experienced aviators to staff the first Intercontinental Ballistic Missile (ICBM) silos. However, as these missileers were deployed for service in Asia,

SAC began recruiting less experienced Air Force personnel from agencies such as the Reserve Officers' Training Corps (ROTC). Therefore, by the 1970s missileers were typically between the age of twenty-two and thirty, and only a handful had any flight experience. During this time, as many as nine hundred new missileers were trained yearly to staff the 1,054 operational ICBMs.[lxxi]

Female Missileers

The rank of crewmembers was not the only staffing change over the years. The Air Force restricted its female members to noncombat positions until the late 1970s. Fighting against the policy, Wisconsin Senator William Proxmire pushed for the integration of women on missile crews, stating that it was unlikely that women would be exposed to enemy fire in a position launching missiles. In 1977 reporter Andy Plattner asked, "Should women be assigned as missile launch officers, who potentially would be firing nuclear missiles in the event of war?"[lxxii] SAC funded several research studies in the 1970s to determine public sentiment on this question and the views of male crew members already serving. The results showed that the public, as well as Air Force personnel, felt that women have the mental and physical attributes required to be a missile combat crewperson.[lxxiii] However, male crew members felt the integration of women would call for several modifications to their time spent on alert. Furthermore, many wives of crewmembers preferred that the crews were either all-female or all-male.[lxxiv]

Women began serving on missile crews for the first time in 1978 on the Titan II missile system, though with some important distinctions. Citing privacy, moral and spousal concerns, SAC took the recommendations of the research studies and required missile combat crews to be either all-female or all-male.[lxxv] Forty-two women served on Titan II crews in this manner until deactivation of the missile system between 1984 and 1987.[lxxvi] Soon thereafter, SAC was directed by the U.S. Air Force Headquarters to begin integrating women as Minuteman missileers, but with the same stipulation, only all-female crews could serve.[lxxvii]

Women were assigned to "topside" duty at Ellsworth's fifteen LCFs beginning in the mid-1980s; however, the underground LCCs continued to be staffed entirely by men until all female missile crews were allowed by the Air Force in 1986.[lxxviii] Ten women were assigned to Ellsworth and served as five all-female Minuteman missile crews. The use of single-gender crews was not without its problems, however. For example, if a female missileer was unable to pull duty for any reason and there were no female replacements available, a male crew had to replace the female crew, leaving it potentially serving more alert tours. After several studies and surveys, SAC began allowing male/female missile crews on 1 January 1988. This not only reduced scheduling issues, but it also increased the opportunities for women in the Air Force.[lxxix] In August 1989, First Lieutenant Michael A. Harbison and First Lieutenant Lisa A. Atkins served Ellsworth's first mixed-gender alert tour at LCC India-01.[lxxx] Once women integrated with men on missile crews, SAC required that missile operations were tasked to guarantee equal career progression for women and men.[lxxxi] Pointing out that the training and the standards were the same for both men and women, one former female missileer felt that there were no biases based on gender when she served at Ellsworth Air Force Base in 1991 and 1992.[lxxxii]

Race Relations on Base

In 1949 the Air Force became a fully integrated branch of the armed services when President Truman ordered on 26 July 1948 that "there shall be equality of treatment and opportunity for all persons in the armed services without regard to race, color, religion or national origin."[lxxxiii] Four years later, in 1952, the Air Force was, in practice, completely desegregated.

The Air Force made proactive efforts to deal with race relation issues to alleviate or eliminate potential problems. Training programs, such as "social actions" (remembered by a former missile crew member), were instituted to prevent discrimination.[lxxxiv] Oral interviews with past personnel of Ellsworth Air Force Base during the late 1960s through the early 1990s offered a positive view of race relations on base. Ken Bush, an African American who served at Ellsworth in the mid-1970s, recalled that race relations within the Air Force "were pretty good at the time I was there."[lxxxv] Former site manager David Burris who served at Ellsworth in the late 1970s and early 1980s stated that he believed that there was very little racial divisions on base and it may have been less than the general society, "because you all worked together and everything."[lxxxvi]

No matter their gender, race, or age, each missileer and each member of their support team was charged with one overriding duty–the maintenance and control of the Minuteman missile. Even stationed in rural South Dakota, they were in a real way on the Cold War's front lines. They considered themselves defenders of freedom and the American way of life. Chief Master Sergeant Martin Pietz, assigned to the 44th Strategic Missile Wing at Ellsworth Air Force Base from 1972 to 1994, described his mission as the following, "Our mission, the way we saw it was, even though we were located in the middle of South Dakota, we were defending the United States from Russian aggressors. The Soviet Union, I mean basically, that was it. We were…looking at defending our country from the Soviet Union."[lxxxvii]

Other segments of American society considered themselves veterans of the Cold War as well, including those who found the Minuteman's very existence both abhorrent and a danger to global peace. Having focused on Delta-01 and Delta-09 and the men and women of Ellsworth, we now shift our focus to Cold War dissenters, the Cold War's climax, and the ways American society has begun the process of remembering this half-century conflict.

Plate 55. Day room in Launch Control Facility Support Building at Delta-01 *(Photograph by Mead & Hunt)*

Plate 56. Day room in Launch Control Facility Support Building at Delta-01 *(Photograph by Mead & Hunt)*

Plate 57. Kitchen in Launch Control Facility Support Building at Delta-01 *(Photograph by Mead & Hunt)*

Plate 58. Facility Manager’s bedroom at Delta-01 *(Photograph by Mead & Hunt)*

Plate 59. Delta-01 Launch Control Facility, Security Control Center
(Library of Congress, Prints and Photographs Division, Historic American Engineering Record, Reproduction Number HAER SD-50-A-50)

Plate 60. Delta Flight Peacekeeper vehicle used by security personnel
(Library of Congress, Prints and Photographs Division, Historic American Engineering Record, Reproduction Number HAER SD-50-15)

Plate 61. Delta-01 sleeping quarters *(Photograph by Mead & Hunt)*

Plate 62. Missile art in vestibule of Launch Control Center, Delta-01
(Photograph by Mead & Hunt)

Plate 63. Blast door, Launch Control Center, Delta-01 *(Photograph by Mead & Hunt)*

Plate 64. Delta-01 Launch Control Center with crew *(Library of Congress, Prints and Photographs Division, Historic American Engineering Record, Reproduction Number HAER SD-50-A-57)*

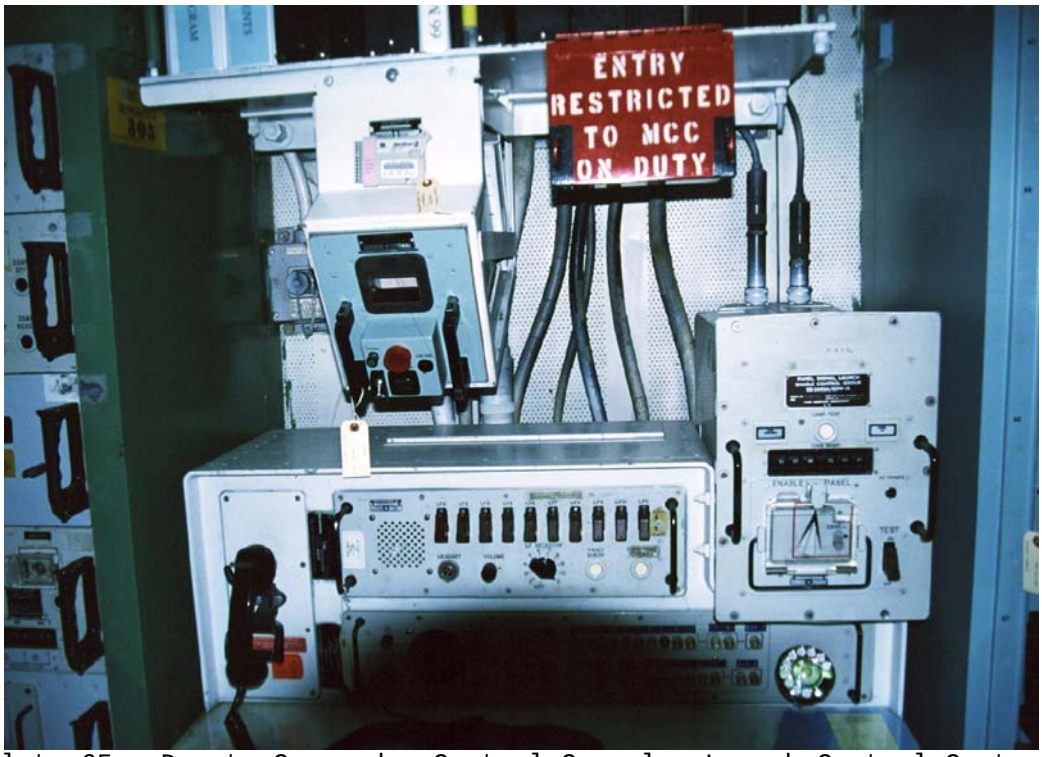

Plate 65. Deputy Commander Control Console, Launch Control Center, Delta-01 *(Photograph by Mead & Hunt)*

Plate 66. Missile Commander Control Console, Launch Control Center, Delta-01 *(Photograph by Mead & Hunt)*

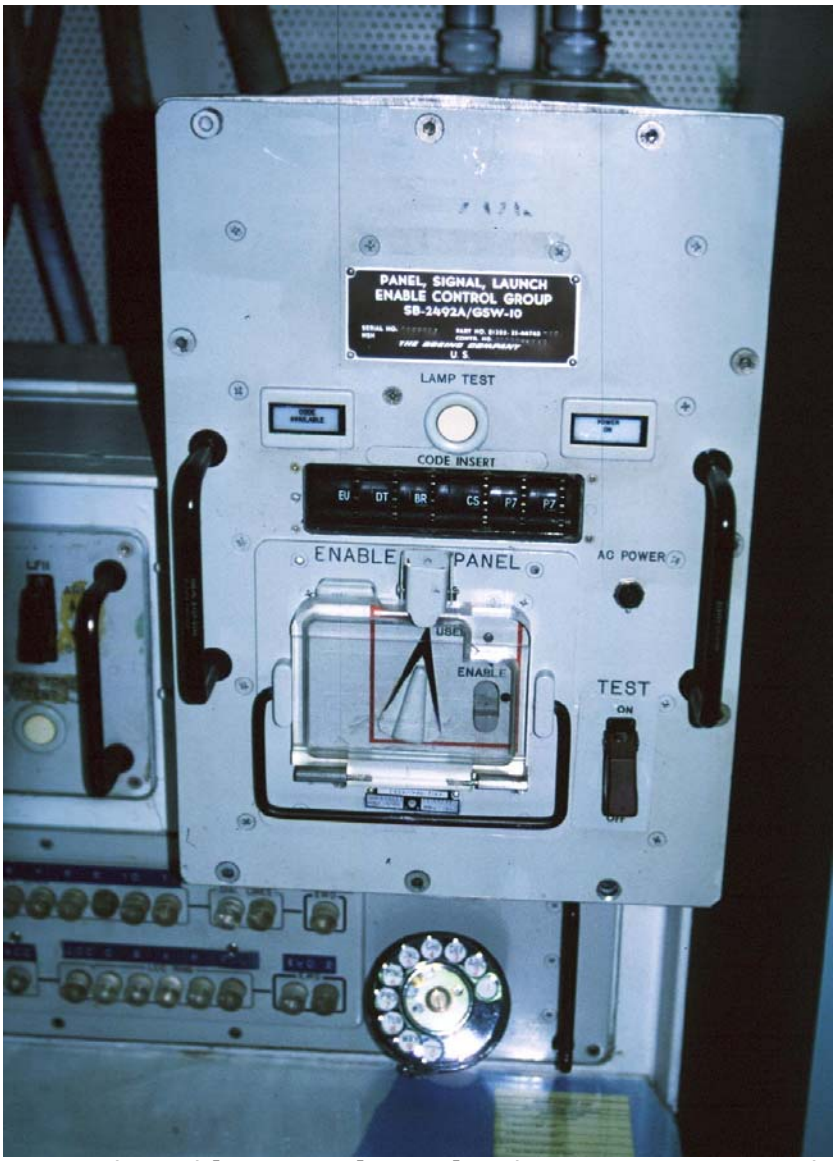

Plate 67. Launch enable control panel, above Deputy Commander Control Console, Launch Control Center, Delta-01 *(Photograph by Mead & Hunt)*

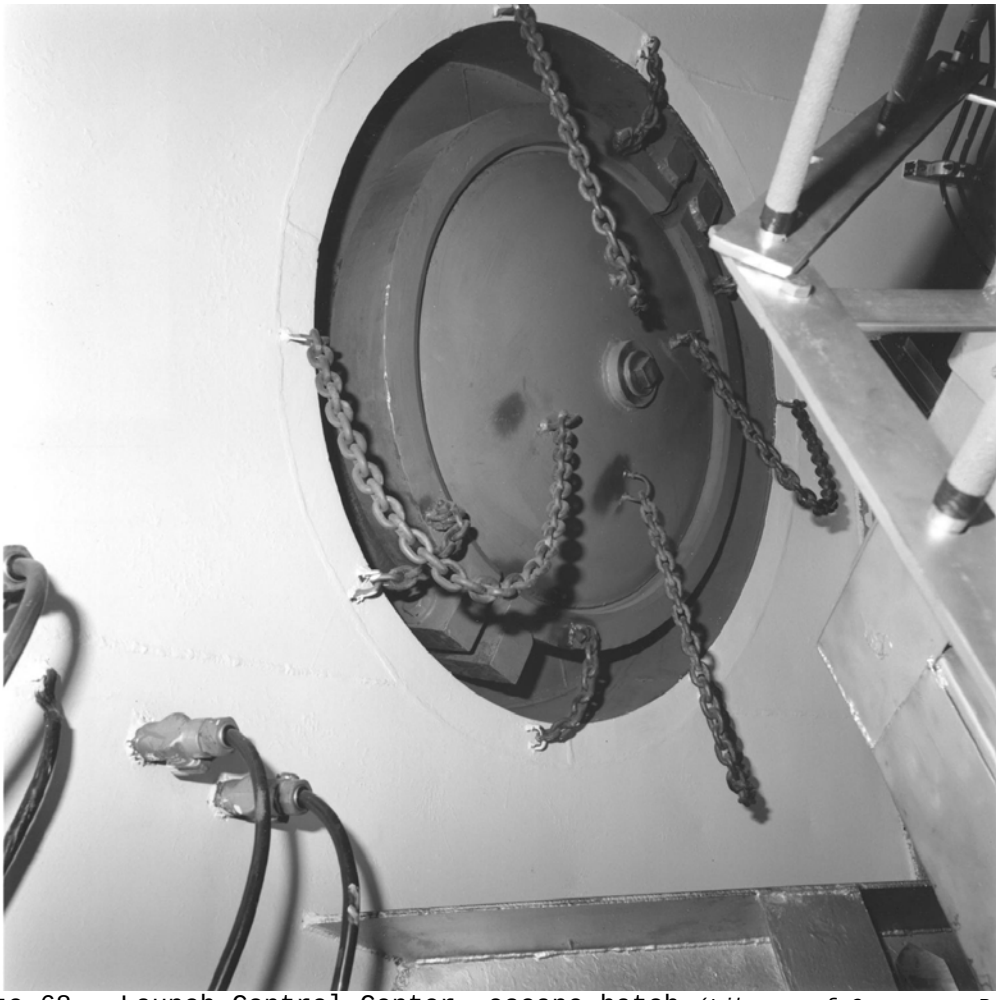

Plate 68. Launch Control Center, escape hatch *(Library of Congress, Prints and Photographs Division, Historic American Engineering Record, Reproduction Number HAER SD-50-A-84)*

Plate 69. Oscar-01 Launch Control Center, Ellsworth Air Force Base
(Courtesy of the 28th Civil Engineer Squadron, Ellsworth Air Force Base)

Plate 70. Launch Control Center art, Ellsworth Air Force Base *(Courtesy of the 28th Civil Engineer Squadron, Ellsworth Air Force Base)*

Plate 71. Launch Control Center art, Ellsworth Air Force Base *(Courtesy of the 28th Civil Engineer Squadron, Ellsworth Air Force Base)*

[i] Burris, interview, 5.
[ii] Martin Pietz, interview by Steven Bucklin, typed transcript, 18 May 1999, 6.
[iii] Pietz, interview, 4.
[iv] David Blackhurst, interview by Steven Bucklin, typed transcript, 19 May 1999, 5.
[v] Manson, interview, 6.
[vi] Lieutenant Charles Stricklin, "Minuteman's House Mouse," *Airman* 18, no. 4 (April 1974): 34.
[vii] Second Lieutenant Robert L. Smolen, "Trapped in the LCF," *Combat Crew* 25, no. 8 (August 1975): 21; Stricklin, "Minuteman's House Mouse," 34-35.
[viii] Major John F. Paolucci, "Making Minuteman Missile Combat Crew Duty a Challenge: A Radical View," (Research study, Air Command and Staff College, 1977), 11.
[ix] Stricklin, "Minuteman's House Mouse," 33.
[x] Stricklin, "Minuteman's House Mouse," 35.
[xi] Burris, interview, 12.
[xii] Stricklin, "Minuteman's House Mouse," 32.
[xiii] Stricklin, "Minuteman's House Mouse," 33.
[xiv] Burris, interview, 10.
[xv] Burris, interview, 4.
[xvi] Paolucci, "Making Minuteman Missile Combat Crew Duty a Challenge: A Radical View," 11-12.
[xvii] Bush, interview, 11.
[xviii] Paolucci, "Making Minuteman Missile Combat Crew Duty a Challenge: A Radical View," 11-12.
[xix] Bush, interview, 11.
[xx] Paolucci, "Making Minuteman Missile Combat Crew Duty a Challenge: A Radical View," 12.
[xxi] Stolley, "How It Feels to Hold the Nuclear Trigger," 38.
[xxii] Williams, interview, 8.
[xxiii] Williams, interview, 6-7.
[xxiv] Pietz, interview, 20.
[xxv] Bush, interview, 3.
[xxvi] Stricklin, "Minuteman's House Mouse," 35.
[xxvii] Paolucci, "Making Minuteman Missile Combat Crew Duty a Challenge: A Radical View," 12-13.
[xxviii] Bush, interview, 12.
[xxix] Burris, interview, 5.
[xxx] Burris, interview, 8.
[xxxi] Donald R. Forbes, "Minuteman Missile Maintenance and Enlisted Career Progression Problems" (master's thesis, Air University, 1983), 19.
[xxxii] Forbes, "Minuteman Missile Maintenance and Enlisted Career Progression Problems," 26-27.
[xxxiii] Forbes, "Minuteman Missile Maintenance and Enlisted Career Progression Problems," 28.
[xxxiv] Forbes, "Minuteman Missile Maintenance and Enlisted Career Progression Problems," 29.
[xxxv] "History of the 44th Strategic Missile Wing," 1 April through 30 April 1963, 16. In U.S. Air Force Collection, AFHRA, K-WG-44-HI, IRIS No. 450511.
[xxxvi] Pietz, interview by Steven Bucklin, 12.

[xxxvii] Forbes, "Minuteman Missile Maintenance and Enlisted Career Progression Problems," 29-30.
[xxxviii] "Quarterly History of the 44th Strategic Missile Wing, 44th Combat Support Group," April – June 1978, exhibit 22. In U.S. Air Force Collection, AFHRA, K-WG-44-HI, IRIS No. 1028310.
[xxxix] Forbes, "Minuteman Missile Maintenance and Enlisted Career Progression Problems," 29-30.
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[xli] Information provided by Tim Pavek, Environmental Engineer, Ellsworth Air Force Base, S. Dak.
[xlii] Atwater, "How the Modern Minuteman Guards the Peace."
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[xlv] Paolucci, "Making Minuteman Missile Combat Crew Duty a Challenge: A Radical View," 12.
[xlvi] Lonnquest and Winkler, *To Defend and Deter: The Legacy of the United States Cold War Missile Program*, 100.
[xlvii] Manson, interview, 3.
[xlviii] Wendy McNiel, interview by Mead & Hunt, Inc., typed transcript, 3 February 2003, 4; "SAC's Mixed, Balanced Missile Crews," *Airman* 32, no. 1 (January 1988): 36.
[xlix] Captain William L. Boone and Major Daniel Tepfer, "Guide to Minuteman Initial Qualification Training," (Research study, Air Command and Staff College, 1978), 4.
[l] Boone and Tepfer, "Guide to Minuteman Initial Qualification Training," 1, 4.
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[lii] Stolley, "How It Feels to Hold the Nuclear Trigger," 37.
[liii] Stolley, "How It Feels to Hold the Nuclear Trigger," 37.
[liv] Lonnquest and Winkler, *To Defend and Deter: The Legacy of the United States Cold War Missile Program,* 101-102.
[lv] Blackhurst, interview, 3-4.
[lvi] Blackhurst, interview, 3-4.
[lvii] It is believed that the launch enable control panel was added to Delta-01 in the 1970s. "Weapons System Operation Instructions," U.S. Air Force, 10 March 1986 (change 18 – 5 September 1991), 2-12 to 2-14.
[lviii] McNiel, interview, 3.
[lix] Stolley, "How It Feels to Hold the Nuclear Trigger," 40.
[lx] McNiel, interview, 4-5; Lonnquest and Winkler, *To Defend and Deter: The Legacy of the United States Cold War Missile Program,* 101.
[lxi] Senior Master Sergeant Tom Kuhn, "Missile Alert," *Airman* 31, no.7 (July 1987): 22.
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[lxiv] Bob Thompson, "Rethinking the Unthinkable," *The Washington Post*, 28 July 2002, Sunday.
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[lxviii] Manson, interview, 12.
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[lxxii] Andy Plattner, "Should Women Fire Missiles," *Air Force Times*, 5 September 1977, 38.
[lxxiii] Major Arthur D. Vaughn, "Is it Feasible to Employ Women on Minuteman Missile Crews?" (Research study, Air Command and Staff College, 1975), 30.
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[lxxxiii] Lawrence J. Paszek, "Negroes and the Air Force, 1939-1949," *Military Affairs* 31 (Spring 1967): 9.
[lxxxiv] Andy Knight, interview by Steven Bucklin, 19 May 1999, 12.
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